

ABSTRAK

Kelapa sawit (*Elaeis guineensis* Jacq.) merupakan salah satu komoditas perkebunan yang memiliki peranan penting dalam perekonomian Indonesia. Keberhasilan budidaya kelapa sawit sangat dipengaruhi oleh kualitas bibit, sehingga diperlukan upaya pemupukan yang tepat pada fase *main nursery*. Penelitian ini bertujuan untuk mengetahui pengaruh pemberian pupuk organik cair (POC) urin kambing, pupuk kandang sapi, pupuk NPK, dan kombinasinya terhadap pertumbuhan bibit kelapa sawit pada fase *main nursery*. Penelitian dilaksanakan di CV. GOTAMA, Desa Langkan, Kecamatan Banyuasin III, Kabupaten Banyuasin, Sumatera Selatan pada bulan Maret sampai Juni 2026. Penelitian menggunakan Rancangan Acak Kelompok (RAK) yang terdiri atas enam perlakuan dan lima ulangan, yaitu P0 (kontrol), P1 (POC urin kambing 150 mL/L), P2 (pupuk kandang sapi 1 kg/polybag), P3 (NPK 5 g/polybag), P4 (POC urin kambing 150 mL/L + NPK 5 g/polybag), dan P5 (pupuk kandang sapi 1 kg/polybag + NPK 5 g/polybag). Parameter yang diamati meliputi tinggi tanaman, diameter batang, jumlah daun, pH media tanam, serta status hara nitrogen (N) dan kalium (K) menggunakan Perangkat Uji Tanah Rawa (PUTR). Data dianalisis menggunakan analisis ragam (ANOVA) pada taraf 5% dan dilanjutkan dengan uji BNT taraf 5% apabila terdapat pengaruh nyata. Hasil penelitian menunjukkan bahwa pemberian POC urin kambing, pupuk kandang sapi, pupuk NPK, dan kombinasinya tidak berpengaruh nyata terhadap tinggi tanaman dan diameter batang, tetapi berpengaruh nyata terhadap jumlah daun pada minggu ke-4 serta pH media tanam pada minggu ke-8 dan minggu ke-12. Berdasarkan seluruh parameter yang diamati, perlakuan P4 (POC urin kambing 150 mL/L + NPK 5 g/polybag) direkomendasikan sebagai perlakuan terbaik karena menghasilkan jumlah daun tertinggi bersama perlakuan P2 serta mampu mempertahankan status hara nitrogen (N) dan kalium (K) pada kategori sedang berdasarkan hasil pengujian PUTR. Kombinasi POC urin kambing dan pupuk NPK diduga mampu menyediakan unsur hara secara lebih seimbang sehingga mendukung pertumbuhan bibit kelapa sawit pada fase *main nursery*.

Kata kunci: *Elaeis guineensis* Jacq., *Main Nursery*, POC urin kambing, pupuk kandang sapi, pupuk NPK.

ABSTRACT

Oil palm (*Elaeis guineensis* Jacq.) is one of the most important plantation commodities contributing significantly to the Indonesian economy. The success of oil palm cultivation is highly dependent on the quality of seedlings; therefore, proper fertilization during the *main nursery* stage is essential. This study aimed to determine the effect of liquid organic fertilizer (LOF) derived from goat urine, cattle manure, NPK fertilizer, and their combinations on the growth of oil palm seedlings during the *main nursery* stage. The research was conducted at CV. GOTAMA, Langkan Village, Banyuasin III District, Banyuasin Regency, South Sumatra, from March to June 2026. The experiment employed a Randomized Block Design (RBD) consisting of six treatments and five replications: P0 (control), P1 (goat urine LOF at 150 mL/L), P2 (1 kg cattle manure/polybag), P3 (5 g NPK/polybag), P4 (goat urine LOF at 150 mL/L + 5 g NPK/polybag), and P5 (1 kg cattle manure/polybag + 5 g NPK/polybag). The observed parameters included plant height, stem diameter, number of leaves, growing media pH, and soil nitrogen (N) and potassium (K) status using the Peatland Soil Test Kit (PUTR). Data were analyzed using analysis of variance (ANOVA) at the 5% significance level, followed by the Least Significant Difference (LSD) test at the 5% level when significant differences were detected. The results showed that the application of goat urine liquid organic fertilizer, cattle manure, NPK fertilizer, and their combinations had no significant effect on plant height and stem diameter but significantly affected the number of leaves at the fourth week and the growing media pH at the eighth and twelfth weeks. Based on all observed parameters, treatment P4 (goat urine LOF at 150 mL/L combined with 5 g NPK/polybag) was recommended as the best treatment because it produced the highest number of leaves together with treatment P2 and maintained both soil nitrogen (N) and potassium (K) at the moderate category according to the PUTR analysis. The combination of goat urine liquid organic fertilizer and NPK fertilizer was presumed to provide a more balanced nutrient supply, thereby supporting the growth of oil palm seedlings during the *main nursery* stage.

Keywords: *Elaeis guineensis* Jacq., goat urine liquid organic fertilizer, *Main Nursery*, NPK fertilizer, oil palm seedlings.